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too willful, while surplus people are almost will-less.

I do not use this argument to show that my position is correct but to make clear what it is on which the contrasted arguments rest. The biologic sociologists are using bold deductive arguments without a verification. Their position has plausibility only by ignoring observational evidence. Deductive medicine with its neglect of diagnosis puts itself in the same position. The one group affirms that what is true of germ cells is true at maturity while the other says what is true of dogs holds for men. This is reasoning, not observation or experiment.

It is said of Agassiz that he took his students out to a great boulder near Cambridge and asked them what they saw on it. Some saw nothing: others saw vague scratches. Only he saw the ice-markings and proof that the boulder was deposited by a glacier. By the methods of to-day instead of these observations we would have exact measurements of the scratches: their depth and length would be carefully ascertained, and finally the Carnegie Institution would be asked to make a grant for weighing the stone. In this way note-books would be filled and a reputation made, but who will say all this is worth as much as what Agassiz saw with his unaided eye? Logic has pitfalls for all of us: we escape from our errors only by shrewd observations and multiple verifications.

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#### MIASTOR LARVÆ

THESE remarkably interesting larvæ, reproduced by pedogenesis, are available for laboratory work to a marked degree and must be widely distributed as well as allied forms. Very little is known concerning American species, largely because their habitat is one rarely explored by entomologists. They breed mostly in decaying vegetable matter. We have been very successful in finding them under partially decayed chestnut bark of stumps, fence rails and sleepers which have been cut one or two years earlier. European species

have been observed under the bark of a variety of trees and even in sugar beet residue. These dipterous maggots with diverging antennæ have a flattened, triangular head quite different from the strongly convex, usually fuscous head of the *Sciara* larvæ occurring in a similar environment. They have a length of from one twentieth to one eighth of an inch and may be found in colonies containing a few large, white larvæ with numerous smaller, yellowish individuals, though the latter appear more common at the present time. Early spring with its abundance of moist bark appears to be the most favorable season for finding the larvæ. The writer would welcome the cooperation of entomologists and others in searching for these forms in different parts of the country. He will be pleased to determine specimens found under various conditions, make rearings therefrom if possible, and thus add to our knowledge of the subfamily Heteropezinæ, a group which should be fairly abundant in North America and one deserving careful study.

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#### SCIENTIFIC BOOKS

*Minéralogie de la France et des ses colonies; description physique et chimiques des minéraux; étude des conditions géologiques de leurs gisements.* Par A. LACROIX. Paris, Librairie Polytechnique, Baudry et Cie, éditeurs. 1893-1910. Four volumes. 8vo. Pp. xx + 723; 804; vi + 815; iii + 923.

This monumental work, which testifies at once to the untiring industry of the writer and to his thorough mastery of the material he has collected, is destined to rank as one of the most valuable contributions to the science of descriptive mineralogy. It consists of four large volumes, containing in all about 3,300 pages, and illustrated with more than a thousand figures, a large number of which are photographic reproductions of characteristic specimens. The first volume was issued in 1893, and at that time the author believed that the work would be completed in two years' time by the issue of a second volume;

but the material was so abundant that the issue of a third, and finally of a fourth volume became requisite.

In his preface to the first volume M. Lacroix calls attention to the fact that France has been commonly regarded as a land poor in minerals, and he finds an explanation of this belief in the comparatively slight favor that has been accorded to mineralogical studies there. A careful consideration of the geological features of that land, the great development attained there by the crystalline schists, by the ancient eruptive rocks, and by the later volcanic ones, should have served as proof that a great variety of mineral forms would be found. The author has sought in every case to trace the mineral to its original source and, as far as possible, to study the conditions controlling its production.

While it is essentially a treatise of descriptive mineralogy that M. Lacroix has produced, he has sought to give, in the case of each mineral, all the information necessary for the student regarding composition, optical properties and general characteristics, so that there might be no necessity to have recourse to other manuals. The crystallographic data are given both in the notation of Lévy-Des Cloizeaux and in that of Miller, and this greatly facilitates the use of the book for those unfamiliar with the French notation. The measurements given are all from specimens secured in the French deposits, the greater part of which have been collected by the author himself.

The considerable interval of time intervening between the issue of the second, third and fourth volumes, and the accumulation of new data—especially from Madagascar—that the author has collected during the past decade, renders the last volume a supplementary one; but the various new items are always referred to their proper place in the general scheme of the work.

The rich material has been arranged, in the main, according to the classification of Groth, and the full and accurate index renders it an easy matter to find the information given in regard to each mineral. The small percentage

of mineral substances not included in the work are those which have not been found in France or in her colonies. The number of gem-stones—that is, of stones furnishing gem-material—is comparatively small, except in the case of the Madagascar deposits. Of the precious metals also there is no great abundance, in spite of the well-known fact that in Roman times the Gauls were exceptionally well supplied with gold. They appear to have nearly exhausted the deposits with which they were acquainted, and no new ones of equal value have since been discovered. In this connection, we may note (Vol. II., p. 422) an illustration figuring a gold medal struck in 1786, and made from the first ingot secured from the mine of La Gardette, dept. Isère.

The fourth volume is largely occupied with the treatment of the great variety of minerals found in the French colony of Madagascar, many of these having been collected by M. Lacroix in 1902 and 1903, when he was on an official mission to the island. More especially the pegmatite rocks of Mt. Bity and its neighborhood have yielded fine specimens of a great many types and varieties with which we are already familiar, and also some that are new or have not been met with in the same perfection elsewhere. Among these may be noted a new species, bityite, named by M. Lacroix, and the beautiful pink variety of beryl, which the writer of the present review has named morganite, in honor of our distinguished fellow-citizen, J. Pierpont Morgan. As the beginning of the systematic search for minerals in Madagascar is of such recent date, we may hope that the future has other pleasant surprises in store for us.

In the course of the publication of this work, begun eighteen years ago, the author was elected a member of the Académie des Sciences in Paris, an honor no one has better deserved than he. His single-hearted devotion to the progress of science is well shown in the following words prefixed to the last volume of his book: "I shall consider myself amply rewarded for my long task if this book should help to stimulate the study of the natural history of minerals in France."

It must be welcome news to the French that their recent acquisition, Madagascar, known as the "Grande Ile," contains many minerals valuable from a commercial point of view, and which may eventually serve to make some return to France for her immense expenditure of blood and treasure in establishing her dominion in that island. Very possibly similar investigations systematically conducted in parts of Cochin China and Tonquin would also reveal mineral deposits of value, not yet uncovered.

M. Lacroix, who was born in Mâcon, department Saône-et-Loire, February 4, 1863, was a pupil of F. Fouqué, of Des Cloizeaux and of Michel-Lévy, and has been since 1893 professor of mineralogy at the Muséum d'Histoire Naturelle, in Paris, an institution founded in 1793, during the French Revolution. Here the minerals contained in the Cabinet du Jardin du Roi, the greater part of which had been collected by D'Angiviller for Buffon, represent the nucleus of what has since become a most extensive and representative collection.

The following illustrious men have served as directors of the museum: Daubenton, 1793-1800; Dolomieu, 1800-1802; Haüy, 1802-1822; Alex. Brongniart, 1822-1847; Dufrenoy, 1847-1857; Delafosse, 1857-1876; Des Cloizeaux, 1876-1893; Lacroix, 1893 to the present time.

The important collections forming part of the great museum collection<sup>1</sup> are as follows: Collection de Chantilly (1793), Coll. Weiss (1802), Coll. Brongniart (1823), Cabinet de la Monnaie (Coll. Sage 1825), Coll. Gillet de Laumont, embracing the collection of Romé de l'Isle (1835), Coll. Haüy (1848), Coll. de l'Académie des Sciences (1855), Coll. Dugate (1874), Coll. Bischoffsheim (1890). All of these, except that of Haüy and of M. Bischoffsheim, are in the general collection.

Besides his "Minéralogie de la France," M. Lacroix has published an exhaustive study of the intrusions in volcanic rocks, and, in collaboration with M. Michel-Lévy, a study of

<sup>1</sup> "Collection de Minéralogie du Muséum d'Histoire Naturelle," Deuxième édition, Paris, 8vo, 1900, 112 pp., 1 pl.

the minerals characteristic of different rocks.<sup>2</sup> In addition to these special works, no less than 260 articles and papers issued in various scientific journals bear witness to the great industry and to the many-sidedness of this writer.<sup>3</sup> There is no broader mineralogist in Europe; the range of his knowledge and the extent of his work in geology, petrography, chemistry and crystallography, and in the correlation of these sciences, constitute and prove a combination of gifts and acquirements rarely met with in one man.

The various scientific missions with whose execution M. Lacroix has been entrusted have led him to Great Britain, Scandinavia, Italy, Germany, Greece, Asia Minor and Madagascar, as well as to North America and the Antilles. After the dreadful eruption of Mt. Pelee, he was selected to head the scientific expedition to Martinique in 1902-3. These missions have afforded him exceptional opportunities for the study of the conditions under which mineral forms appear in many different parts of the world, of their associations and probable genesis. The wide experience thus acquired has undoubtedly contributed much to the special excellence of M. Lacroix's work in the field of mineralogy. Full appreciation has been accorded to him both in his native land and in foreign countries. He has twice been Lauréat de l'Institut, in 1892, and in 1903, and, as we have noted, was elected a member of the Académie des Sciences, section of mineralogy, in 1904.

He is an honorary or corresponding member of scientific societies in London, St. Petersburg, Vienna, Rome, Turin, Kristiania, etc., and is also an honorary member of our New York Academy of Sciences.

Eighteen names has Professor Lacroix added to mineralogy. They are as follows: Fouqueite (1889, *Bull. Soc. Min.*, XII., 330),

<sup>2</sup> "Les enclaves des roches volcaniques," Mâcon, 1893, 770 pp. with 35 figures and 8 colored plates, 8vo. "Les minéraux des roches," Paris, 1888, 334 pp., 8vo.

<sup>3</sup> "Notes sur les Travaux Scientifiques de M. A. Lacroix, Prof. de Minéralogie du Muséum d'Histoire Naturelle," Paris, 1903, 4-126 pp.

michellevyte (1889, *Comptes Rendus*, CVIII., 1128; "Minér. de la France," IV., 48), morinite (1891, *Bull. Soc. Min.*, XIV., 187; "Minér. de la France," IV., 539) pseudoboleite (1895), gonnardite (1896, "Minér. de la France," II., 279), ktypeite (1898), picrocrichtonite (1900, "Minér. de la France," III., 284), pseudochalcedonite (1900, "Minér. de la France," III., 159), grandidierite (1902, "Minér. de la France," IV., 670), giorgiosite (1905), georgiadesite (1907), palmierite (1907), plancheite (1908, "Minér. de la France," IV., 757), villiaumite (1908, "Minér. de la France," IV., 881), bityite (1908, "Minér. de la France," IV., 673), metacristobalite (1909, "Minér. de la France," III., 806).

GEORGE F. KUNZ

#### BOTANICAL NOTES

##### TWO NEW BOTANICAL JOURNALS

WITHIN the past few months two new botanical journals have appeared in this country, asking for recognition and support by botanists.

The first in point of time is the *American Fern Journal*, the first number of which appeared about the middle of last August. It is now announced to be the "official organ of the American Fern Society," and its place of publication is Port Richmond, N. Y. It is to be "devoted to the general study of ferns," and is to appear quarterly. The field of the new journal appears to be distinctly systematic in the old sense, and would seem to be intended to serve old-time collectors of ferns, and the private makers of fern herbaria. While the *Fern Journal* does not cover exactly the field already occupied by the *Fern Bulletin*, published by W. N. Clute, the latter being much less technical, it must be confessed that they are rather too nearly alike, and one is led to wonder whether there is room in this country for two journals devoted to such a small group of plants as the ferns. However, we may hope that after a period characterized by a "struggle for existence" there may be a "survival of the fittest." In the meantime let us keep up our subscriptions for both periodicals, hoping that the best that

there is in each may be preserved in the "survival," which may be a "Journal-Bulletin."

The other journal—*Phytopathology*—is also an "official organ," having for this relation the American Phytopathological Society. It "is designed primarily as a channel of publication for the phytopathological contributions of the members of the society." The principal editors are Professor L. R. Jones, of the University of Wisconsin, Dr. C. L. Shear, of the U. S. Department of Agriculture, and Professor H. H. Whetzel, of Cornell University. It is to appear bimonthly, and the subscription price is three dollars.

It is clearly to be a strictly scientific journal of plant pathology, having no popular leanings whatever. Its field has hitherto been wholly unoccupied, and there should be no question as to the support of the journal. It should be found on every botanist's table, and should be accessible to all students of plant pathology.

##### A PERIODICAL FOR MOSS STUDENTS

A NEW chapter is opened for *The Bryologist*; with the January, 1911, number it becomes the property of The Sullivant Moss Society, and its officers recently elected become the advisory board: President, Dr. Alexander W. Evans, Yale University; vice-president, Miss Caroline Coventry Haynes, Highlands, N. J.; secretary, Mr. N. L. T. Nelson, Des Moines College, Des Moines, Ia.; treasurer, Mrs. Annie Morrill Smith, Brooklyn, N. Y. They have appointed Dr. A. J. Grout, as editor-in-chief, with associate editors as follows: Dr. George N. Best, Rosemont, N. J.; Dr. A. W. Evans, New Haven, Conn.; John M. Holzinger, Winona, Minn., and Professor Lincoln W. Riddle, Wellesley College, Wellesley, Mass.

The Sullivant Moss Society has held seven most successful public meetings in affiliation with the American Association for the Advancement of Science, and plans to hold the eighth in the same connection at Washington, D. C., this coming December.

It will be noticed that the associate editors represent an eminent authority in the several